

AD-A228 583

Report B002/1

**Final Technical Report: Radar Experiments Data Reduction, and  
Experimental Tests (U)**



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GE Government Services  
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OCTOBER 1990

**FINAL REPORT FOR PERIOD OCTOBER 1988-MARCH 1990**

~~Distribution of Report.  
COTR, Administrative Contracting Officer/N00173  
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4555 Overlook Avenue, SW  
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Under Contract No. N00014-88-C-2045

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19. ABSTRACT (Continue on reverse if necessary and identify by block number) GE Government Services was tasked to provide technical support at the Airborne Radar branch of NRL. This included software support for the evaluation and development of advanced radar antenna systems, development and maintenance of target identification databases, and the data reduction of raw radar data from field tests. <i>Report is: Radar Systems; DATA REDUCTION (RH)</i>				
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## FINAL TECHNICAL REPORT

Contract No.: N00014-88-C-2045  
Period of Performance:

Base Period: 02 November 1987 - 30 September 1988  
Option 1: 01 October 1988 - 31 March 1990

Contract was awarded as Sole Source.

### Preface:

General Electric Government Services (hereafter referred to as GEGS) has conducted radar experiments and has analyzed and reduced data obtained during theoretical and experimental tests for the Airborne Radar branch of the Naval Research Laboratory. This support included software support for the evaluation and development of advanced radar antenna systems, development and maintenance of target identification databases, and the data reduction of raw radar data from field tests.

A summary of some of the work performed in accordance with the six tasks identified in the scope of work, which was provided as ATTACHMENT No. 1, to Contract N00014-88-C-2045, is enumerated in the following sections.



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Naval Research Laboratory/code 5360.

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**Task I:**

Under this task, GEGS provided continued support of the NOVA computers and assisted in the transition to newer machines. Shortly after the start of this contract, the utilization of the NOVA computers was reduced and the porting of many application programs was begun. One of the main efforts involved in the software conversion entailed the use of ISAR support packages. This required an expertise in several versions of FORTRAN and its extensions in different machines.

**Task II:**

For this effort, GEGS continued provision of software support in the evolving antenna designs. GEGS analyzed and presented results for data from prototype antennas, recorded on mag tape. The output utilized is both tabular and graphic, on multiple media. As an example, graphic output may be channeled to an HP 7020 or similar pen plotter or may be captured on graphic CRT monitors. To perform this task, GEGS staff utilized an understanding of "AGC" and "DGL" for Hewlett-Packard computers.

**Task III:**

This assignment entailed supporting the addition of a VAX 11/750 to the Airborne Radar section and the continued use of the VAX 11/730. All system updates and maintenance of the software utility packages, were provided by GEGS staff. Additionally, GEGS personnel provided test and evaluation services, and analyses of the impact of new configurations on existing equipment.

**Tasks IV, V, and VI:**

Under these tasks, GEGS personnel worked closely with the entire contingent of the Airborne Radar branch. Generalized software support for radar studies required the application of multiple disciplines. In addition, the work required an thorough knowledge of the VAX 11/730, VAX 11/750, Amiga 1000, Hewlett-Packard 9836, HP 150, HP Series 300, HP 1000, Sun 4, C3, NOVA, and DG Eclipse machines.

#### **Tasks IV, V, and VI (Continued):**

Software support required the application of several operating systems, including VMS for the VAX series, the UNIX system for the Hewlett-Packard, Sun 4, and C3 machines, the PASCAL system for the HP300 machines, and MS DOS for the Hewlett-Packard 150 and the Amiga machines.

Several graphic systems were employed to analyze the radar data. These included displays for the VAX series and the Hewlett-Packard machines, DGL and AGP for the HP 1000 and the series 300s, Sunview for the Sun and C3 machines, and "intuition," for the Amiga machines.

For communication protocols, GEGS provided escape code sequences for the Hewlett-Packard machines, for KERMIT, and FTP (File Transfer Protocol-Ethernet). GEGS provided assistance using many different utility functions and assisted in developing interfaces for several systems.

## **CERTIFICATIONS:**

In accordance with section H.0150, of Contract N00014-88-C-2045, FINAL REPORT CERTIFICATION, the number of hours expended by category of labor, for the subject period, is provided below:

Scientific Analyst:	6,240 Hours	<b>Base Period</b>
Computer Programmer:	6,240 Hours	
Scientific Analyst:	6,760 Hours	<b>1st Option Period</b>
Computer Programmer:	7,360 Hours	

The hours provided above are based on "gross" time (total payroll hours), in the same manner as the hours given as required in the basic contract. Since all of the personnel located on site at NRL were devoted full-time to efforts provided under this contract, we have calculated the hours, based on a forty hour work-week for the period of performance.

It should be noted that the original contract anticipated that NRL technical staff would require the services of six full-time personnel. However, in response to the requirements directed by the COTR, GE provided a four man staff for most of the first option period (which was extended).

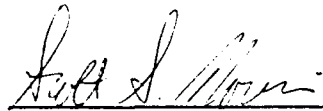
In accordance with section H.0050, of the contract, INVENTION DISCLOSURES AND REPORTS (NRL CPFFH 5), GEGS certifies that it has made no inventions nor discoveries during the performance of this contract, and does not intend to apply for any patents.

**CERTIFICATIONS (Continued):**

In accordance with section I.0090 of the contract, pertaining to CERTIFICATION OF TECHNICAL DATA CONFORMITY (MAY 1987) (DFARS 52.227-7036), the following certification is made:

- (a) The Contractor, GE Government Services, hereby certifies that, to the best of its knowledge and belief, the technical data delivered herewith under Contract No. N00014-88-C-2045 is complete, accurate, and complies with all requirements of the contract.

Date 16 October 1990



S.S. Morris  
Sr. Contract Administrator  
(609) 486-5568



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